

REMARKS

Claims 1-44 are pending in the subject application. Claims 18-44 have been withdrawn from consideration pursuant to a restriction requirement set forth in the outstanding March 6, 2003, office action. Hereinabove, claims 1, 8, 14, and 16 have been amended. No claims have been canceled, and no claims have been added. Therefore, the claims now under consideration are claims 1-17, as amended. In view of the above amendments and following remarks, applicants respectfully request reconsideration of the rejections set forth in the outstanding office action.

Applicants hereby affirm the telephonic election, with traverse, of Group I (claims 1-17). Applicants submit that it is inappropriate to impose a restriction requirement here, because Group I and Group II are related to one another and would necessarily require common areas of search and consideration. Therefore, to conserve applicants' resources as well as those of the U.S. Patent and Trademark Office, applicants respectfully request that the restriction requirement be reconsidered and withdrawn.

The rejection of claims 1-4, 8, 10, 13-14, and 17 under 35 U.S.C. § 102(b) for anticipation by U.S. Patent No. 4,352,142 to Olson ("Olson") is respectfully traversed.

Claim 1 is directed to a method of reducing damage resulting from environmental electromagnetic effects on a

non-metallic surface. As amended hereinabove, claim 1 calls for "disposing a polymeric sheet material over the non-metallic surface" and "disposing a metal layer between the non-metallic surface and the polymeric sheet material, wherein the polymeric sheet material and the metal layer form a layered structure in which the polymeric sheet material is the layered structure's outermost layer." (emphasis added).

Olson teaches a lightning strike protection sandwich structure 100 for an underlying aircraft structural member made of a composite material. Sandwich structure 100 is depicted in Figure 2 of Olson and discussed at column 2, lines 23-27. More particularly, at column 2, lines 23-27, Olson states that "sandwich structure 100 includes a pair of outer layers of aluminum foil 20 and 28 between which is sandwiched an intermediate dielectric layer 24." Referring to Figure 2 of Olson, it is clear that, in Olson, the outermost layer of the sandwich structure is an aluminum foil layer (20). For at least this reason, claim 1 is novel over the teachings of Olson.

As to claims 2-4, 8, 10, 13-14, and 17, each of these claims depend from claim 1 and should, therefore, be novel over Olson for at least the same reasons that claim 1 is novel over Olson.

For all of the above reasons, applicants submit that the rejection of claims 1-4, 8, 10, 13-14, and 17 under 35 U.S.C. § 102(b) for anticipation by Olson should be reconsidered and withdrawn.

The rejection of claims 1-5, 8, 10, 14-15, and 17 under 35 U.S.C. § 102(b) for anticipation by U.S. Patent No. 5,866,272 to Westre et al. ("Westre") is respectfully traversed.

As discussed above, claim 1 is directed to a method of reducing damage resulting from environmental electromagnetic effects on a non-metallic surface, and claim 1 (as amended hereinabove) calls for "disposing a polymeric sheet material over the non-metallic surface" and "disposing a metal layer between the non-metallic surface and the polymeric sheet material, wherein the polymeric sheet material and the metal layer form a layered structure in which the polymeric sheet material is the layered structure's outermost layer." (emphasis added).

Westre describes skin panels for aircraft which include two hybrid laminate skins disposed on either side of a structural core. Each hybrid laminate skin is made up of alternating layers of (i) organic resin having parallel reinforcing fibers embedded therein and (ii) titanium alloy foil. More particularly, Westre's skin panels are depicted in Figure 1A of Westre, and the hybrid laminate skin used to make these skin panels is depicted in Figure 1 of Westre. From Figure 1, it is clear that the outermost layer of the hybrid laminate skin is a layer of titanium alloy foil (10). The other laminate structures shown in Westre (e.g., Westre's Figures 3B, 3C, 4A, 4B, 4C, 4D, and 5 all show an outermost layer of titanium alloy foil (10). For at least these reasons, claim 1 is novel over the teachings of

Westre.

As to claims 2-5, 8, 10, 14-15, and 17, each of these claims depend from claim 1 and should, therefore, be novel over Westre for at least the same reasons that claim 1 is novel over Westre.

For all of the above reasons, applicants submit that the rejection of claims 1-5, 8, 10, 14-15, and 17 under 35 U.S.C. § 102(b) for anticipation by Westre should be reconsidered and withdrawn.

The rejection of claims 5-7 and 9 under 35 U.S.C. § 103(a) for obviousness over Olson is respectfully traversed.

The rejection of claims 11-12 under 35 U.S.C. § 103(a) for obviousness over Olson in view of U.S. Patent No. 4,933,060 to Prohaska et al. ("Prohaska"), U.S. Patent No. 4,946,903 to Gardella, Jr. et al. ("Gardella '903"), U.S. Patent No. 5,266,309 to Gardella, Jr. et al. ("Gardella '309"), U.S. Patent No. 5,627,079 to Gardella, Jr. et al. ("Gardella '079"), and/or U.S. Patent No. 5,696,207 to Vargo et al. ("Vargo") is respectfully traversed.

The rejection of claims 14-15 under 35 U.S.C. § 103(a) for obviousness over Olson in view of WO 99/64235 of Hoyle et al. ("Hoyle") is respectfully traversed.

The rejection of claims 1-17 under 35 U.S.C. § 103(a) for obviousness over Westre in view of U.S. Patent No. 4,061,812 to Gilwee, Jr. et al. ("Gilwee") is respectfully traversed.

The outstanding office action, in discussing these rejections, asserts (i) that it is well known in the art to use fabric which is impregnated with a fluoropolymer resin as a dielectric layer in a multi-layer composite having electromagnetic shielding properties; that it is well known in the art to use metal screens and expanded metal foil in making a multi-layer composite for aircraft; and that this knowledge, combined with the teachings of Olson, renders claims 5-7 and 9 obvious; (ii) that Prohaska, Vargo, Gardella '903, Gardella '309, and/or Gardella '079 teach the process steps recited in claims 11-12 and that one skilled in the art would have been motivated to perform these process steps in making Olson's lightning strike protection sandwich structure; (iii) that Hoyle teaches applying an applique having a fluoropolymer backing onto an aluminum surface of an aircraft and that this teaching, combined with the teachings of Olson renders claims 14-15 obvious; and (iv) that Gilwee teaches aircraft composite structures which include a non-metallic honeycomb core and that this teaching combined with that of Westre renders claims 1-17 obvious.

Without commenting on whether the outstanding office action's assertions have merit, applicants submit that, even if these assertions were correct, claim 1 would, nevertheless, be patentable over Olson, Westre, Prohaska, Vargo, Gardella '903, Gardella '309, Gardella '079, Hoyle, Gilwee, and combinations of these references.

More particularly, as discussed above, claim 1 is directed to a method of reducing damage resulting from

environmental electromagnetic effects on a non-metallic surface and (as amended hereinabove) calls for "disposing a polymeric sheet material over the non-metallic surface" and "disposing a metal layer between the non-metallic surface and the polymeric sheet material, wherein the polymeric sheet material and the metal layer form a layered structure in which the polymeric sheet material is the layered structure's outermost layer." (emphasis added). Further, as discussed above, Olson's teachings are limited to sandwich structures in which the outermost layer is an aluminum foil layer, and Westre's teachings are limited to hybrid laminate skins in which the outermost layer is a layer of titanium alloy foil.

Prohaska, Vargo, Gardella '903, Gardella '309, and Gardella '079 relate to methods for bonding fluoropolymers to metals, and they do not remedy the deficiencies in the teachings of Olson and Westre as to the nature of the outermost layer.

Gilwee teaches that aircraft composite structures can include a non-metallic honeycomb core, but it does not remedy the deficiencies in the teachings of Olson and Westre as to the nature of the outermost layer.

Hoyle discloses appliques that can be used on metal surfaces, particularly aluminum surfaces of planes. Hoyle further discloses that the appliques can be used on surfaces of composite materials, such as carbon fiber reinforced plastics. Nothing in Hoyle suggests that the appliques can be used over the metal outermost layer of a

laminate structure, such as Olson's sandwich structure or Westre's hybrid laminate skins. Moreover, there is nothing in Olson or Westre to teach or suggest that use of an applique, such as the one described in Hoyle, would not adversely affect the ability of Olson's sandwich structure or Westre's hybrid laminate skins to protect an underlying composite structure from lightning strikes. To the contrary, at column 3, lines 50-52, Westre states: "The hybrid laminates are resistant to zone 1 lightning strikes due to the outer titanium foil . . . ." (emphasis added) In view of Westre's teaching that the outer foil is responsible for the hybrid laminate's resistance to lightning strikes, one skilled in the art, interested in reducing damage caused by lightning strikes, would not have used an Hoyle's appliques over the outermost metal layer of Olson's sandwich structure or Westre's hybrid laminate.

For at least these reasons, applicants submit that claim 1 is not obvious over the teachings of Olson, Westre, Prohaska, Vargo, Gardella '903, Gardella '309, Gardella '079, Hoyle, Gilwee, and combinations of these references.

As to claims 2-17, each of these claims depend from claim 1 and should, therefore, be non-obvious over the teachings of Olson, Westre, Prohaska, Vargo, Gardella '903, Gardella '309, Gardella '079, Hoyle, Gilwee, and combinations of these references.

For at least these reasons, applicants submit that the outstanding office action's rejections under 35 U.S.C. § 103(a) for obviousness over Olson, Westre, Prohaska, Vargo,

Gardella '903, Gardella '309, Gardella '079, Hoyle, Gilwee, and combinations of these references should be reconsidered and withdrawn.

Kindly note that the correspondence address for the present application has been changed, as indicated in the enclosed Change of Attorney or Agent's Address in Application.

In view of the foregoing, it is submitted that this case is in condition for allowance, and such allowance is earnestly solicited. Should any issues remain which can usefully be discussed by telephone, the Examiner is invited to contact applicants' undersigned attorney at the number provided below and on the enclosed Change of Attorney or Agent's Address in Application.

Respectfully submitted,

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Date

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